AMENDMENTS TO THE CLAIMS:

This listing of the claims replaces all prior versions and listing of the claims in the present application.

Listing of Claims:

1. (previously presented) A method for attenuating sound in a duct, the sound to be attenuated being detected in the method by means of a detector (2) and the attenuation being performed by means of two successive actuator elements (3, 4), wherein sound is attenuated by means of two successive monopole elements (3, 4) in such a way that both elements (3, 4) function as a dipole approximation and also produce a monopole radiation needed, a dipole control signal being fed to both elements (3, 4) at a phase shift which is 180° between the two elements and a monopole control signal being fed to the elements (3, 4) cophasally,

wherein the control signal of the first actuator element (3) is

$q_1 = ½(a/jkd-b/2)q_i$,

and the control signal of the second actuator element (4) is

$q_2 = -½(a/jkd+b/2)q_i$,

where

j is an imaginary unit;

k is a wave number = ω/c_0;

ω is an angular frequency;

c_0 is sound velocity in a medium;

d is a distance between the actuator elements (3, 4);

q_i is the sound pressure to be attenuated, located at the center of the actuator elements (3, 4), and converted to a volume velocity quantity;

a is a constant or a dipole part control function; and

b is a constant or a monopole part control function.

2. (currently amended) ~~The method according to claim 12,~~ A method for attenuating sound in a duct, comprising the steps of:

detecting sound in a duct that is to be attenuated;

generating dipole control signals based on the detected sound for two successive actuator elements in the duct that produce a unidirectional signal in plane wave form, the generated dipole control signals having a phase shift of 180° with each other;

generating monopole control signals based on the detected sound for the two elements, the generated monopole control signals being in phase with each other; and

combining the respective dipole and monopole control signals for each of the two elements and feeding the combined signals to the two elements, respectively, to produce the unidirectional signal in plane wave form,

wherein the combined control signal for a first of the successive actuator elements is

$q_1 = ½(a/jkd-b/2)q_i$,

and the combined control signal for a second of the successive actuator elements is

$q_2 = -½(a/jkd+b/2)q_i$,

where

j is an imaginary unit;

k is a wave number = ω/c_0;

ω is an angular frequency;

c_0 is sound velocity in a medium;

d is a distance between the actuator elements;

q_i is the sound pressure to be attenuated, located at the center of the actuator elements (3, 4), and converted to a volume velocity quantity;

a is a constant or a dipole part control function; and

b is a constant or a monopole part control function.

3. (previously presented) The method according to claim 2, wherein "a" is a dipole part control function and "b" is a monopole part function such that

$$a = \frac{kd/2}{\sin(kd/2)}$$

and

$$b = \frac{1}{\cos(kd/2)}.$$

4. (previously presented) The method according to claim 2, wherein, in the control signals (q_1, q_2) of the elements, the impact of the imaginary unit is determined by using an integrator.

5. (previously presented) An equipment for attenuating sound in a duct, the equipment comprising:

a detector (2) for detecting the sound to be attenuated; and

two successive actuator elements (3, 4) for producing a sound attenuating counter-sound, wherein the actuator elements (3, 4) are monopole elements which are arranged to function as a dipole approximation and to also produce a necessary monopole radiation and that the equipment comprises means for feeding a dipole control signal to both elements (3, 4) at a phase shift which is 180° between the two elements and for feeding a monopole control signal to the elements (3, 4) cophasally,

wherein the control signal of the first actuator element (3) is

$q_1 = ½(a/jkd-b/2)q_i$,

and the control signal of the second actuator element (4) is

$q_2 = -½(a/jkd+b/2)q_i$,

where

j is an imaginary unit;

k is a wave number = ω/c_0;

ω is an angular frequency;

c_0 is sound velocity in a medium;

d is a distance between the actuator elements (3, 4);

q_i is the sound pressure to be attenuated, located at the center of the actuator elements (3, 4), and converted to a volume velocity quantity;

a is a constant or a dipole part control function; and

b is a constant or a monopole part control function.

6. (currently amended) ~~The equipment according to claim 13,~~ An equipment for attenuating sound in a duct, comprising:

a detector that detects sound in a duct that is to be attenuated;

two successive actuator elements in the duct that produce a unidirectional signal in plane wave form; and

a control unit that generates dipole control signals based on the detected sound for said two elements, the generated dipole control signals having a phase shift of 180° with each other, that generates monopole control signals based on the detected sound for said two elements, the generated monopole control signals being in phase with each other, and that combines the respective dipole and monopole control signals for each of said two elements and feeds the combined signals to said two elements, respectively, to produce the unidirectional signal in plane wave form,

wherein the combined control signal for a first one of the actuator elements is

$q_1 = \frac{1}{2}(a/jkd-b/2)q_i$,

and the combined control signal for a second one of the actuator elements is

$q_2 = -\frac{1}{2}(a/jkd+b/2)q_i$,

where

j is an imaginary unit;

k is a wave number = ω/c_0;

ω is an angular frequency;

c_0 is sound velocity in a medium;

d is a distance between the actuator elements;

q_i is the sound pressure to be attenuated, located at the centre of the actuator elements (3, 4), and converted to a volume velocity quantity;

a is a constant or a dipole part control function; and

b is a constant or a monopole part control function.

7. (previously presented) The equipment according to claim 6, wherein "a" is a dipole part control function and "b" is a monopole part function such that

$$a = \frac{kd/2}{\sin(kd/2)}$$

and

$$b = \frac{1}{\cos(kd/2)}.$$

8. (previously presented) The method according to claim 3, wherein, in that the control signals (q_1, q_2) of the elements, the impact of the imaginary unit is determined by using an integrator.

9. (previously presented) The method according to claim 1, wherein "a" is a dipole part control function and "b" is a monopole part function such that

$$a = \frac{kd/2}{\sin(kd/2)}$$

and

$$b = \frac{1}{\cos(kd/2)}.$$

10. (previously presented) The method according to claim 1, wherein, in the control signals (q_1, q_2) of the elements, the impact of the imaginary unit is determined by using an integrator.

11. (previously presented) The equipment according to claim 5, wherein "a" is a dipole part control function and "b" is a monopole part function such that

$$a = \frac{kd/2}{\sin(kd/2)}$$

and

$$b = \frac{1}{\cos(kd/2)}.$$

12-13. (canceled)